

REMARKS

In response to the final Official Action of March 31, 2003, amendment has been made to independent claims 1, 7 and 14 to more particularly point out and distinctly claim Applicant's invention and to thereby further distinguish Applicant's claimed invention over the prior art cited in the final Official Action.

Referring now to paragraphs one and two of the Official Action, it is respectfully submitted that claims 1-3, 7, 8, 10 and 12-14, as amended, are not anticipated by U.S. Patent No. 6,476,766 (*Cohen*). In the final Official Action, the Examiner cites *Cohen* claiming that it anticipates the above-mentioned claims in view of Figure 13B which, as set forth at column 9, lines 22-25, states that this figure depicts a non-planar fractal antenna or resonator on a flexible substrate 820 that is curved so as to shift the resonant frequency. As noted in Figure 13B, as well as throughout the entire description of *Cohen*, this reference is directed to an antenna system which includes a fractalized element that may be a ground counterpoise, a top-hat located load assembly, or a microstrip patch antenna having at least one element whose physical shape is at least partially defined as a first or higher iteration deterministic fractal. A fractal as known in the art and as defined in the American Heritage Dictionary of the English Language (4th Ed., copyright 2000) is:

"a geometric pattern that is repeated at ever smaller scales to produce irregular shapes and surfaces that cannot be represented by classical geometry."

In particular, with reference to Figure 13B, *Cohen* shows a non-planar surface 820 which is specifically a flexible substrate, which substrate is continuous. However, the flexible substrate surface 820 is not a radiator surface. *Cohen* specifically discloses with regard to Figure 13B a fractal antenna 810, which is mounted on the flexible substrate. By definition, a fractal is a geometric pattern that is self-repeating on smaller scales. As clearly shown in the figures and specification of the present application, the antenna shown in Figure 2 is continuous and irregular, but is not self-repeating on smaller scales; i.e., it clearly does not have a fractal geometry. Thus, claim 1 as amended herein clearly distinguishes over the structures shown in *Cohen*, including Figure 13B, since all of these structures are self-repeating on smaller scales, which is not the type of structures disclosed and claimed in the present application as amended.

Furthermore, claim 1 has been amended to set forth that it is directed to a planar inverted F-antenna (PIFA). Such a type of antenna is not disclosed or suggested in *Cohen*. Independent claim 7 is similar to claim 1 except that it is directed to a mobile station including such an antenna. It has been amended in a manner similar to claim 1 and is therefore also believed to be distinguished over *Cohen*.

Claim 14 is further believed to be distinguished over *Cohen* in view of the fact that the fractal antenna 810 shown in Figure 13B of *Cohen* is clearly regular in shape. By definition, a fractal has a geometric pattern which is repeated at ever smaller scales so that the overall shape cannot be defined by a normal geometric pattern. The present invention as set forth in amended claim 14 recites that the non-planar radiator surface is not only irregular, but also is non-self-repeating on ever smaller scales. Claim 14 is therefore clearly distinguished from the fractal design of *Cohen*.

Dependent claims 2-6 and 8-13 are therefore distinguished over *Cohen* since these claims add further limitations to claim 1. Thus, for all of the foregoing reasons, it is respectfully submitted that claims 1-3, 7, 8, 10 and 12-14, as amended, are neither anticipated nor suggested by *Cohen*.

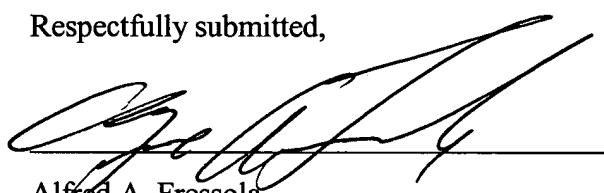
Referring now to paragraph four of the Official Action, it is respectfully submitted that claims 4-6 and 9-11 are not obvious in view of *Cohen*. The Examiner states that the Figure 13B embodiment of *Cohen* would suggest these claims, wherein these claims particularly point out a ground plane having a planar surface. In this regard, the Examiner further references Figures 11 and 12 of *Cohen* which, as set forth in *Cohen* at column 9, lines 1-18, disclose embodiments of a fractal antenna having a constant distance *A* from a conductor element. Such a spacing between the radiator surface and the ground plane is totally different from the non-constant spacing between the radiator surface and the planar ground plane as specifically claimed in claims 4-6 and 9-11 of the present application. Thus, although *Cohen* shows that it is conceivable to have a planar ground plane, it does not disclose or suggest the combination of such a planar ground plane with a radiator surface that is non-planar; but rather, only shows it in the configurations of Figures 11A, 11B, 12A and 12B, wherein a fractal antenna 810 also lies in a planar surface. For all of the foregoing

reasons, it is therefore respectfully submitted that claims 4-6 and 9-11 are not suggested nor disclosed by *Cohen*.

It is respectfully submitted that the proposed amendments to claims 1, 7 and 14 should be entered since they do not raise new issues, but rather more particularly point out and distinctly claim what the Applicant regards as its invention in view of new art first submitted by the Examiner in the final Official Action.

It is therefore also respectfully submitted that the present application is in condition for allowance, and such action is earnestly solicited. The Examiner is invited to contact applicant's attorney at the number below if there are any questions.

Respectfully submitted,



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